

REMARKS

Remarks

Reconsideration of the pending claims in view of the above amendments and following remarks is respectfully requested.

Claims 1, 5, 7, 8, 10 and 11 are amended. Claims 2 and 3 are withdrawn. New claims 16 and 17 are added, which have support in original claims 8 and 10 respectively.

Claim 1 is amended by replacing the phrase "interacting with said solution to cause" with "causing"; claim 5 is amended by deleting "layers of" and inserting "each comprising a hydrophilic polymer and a blowing agent" in reference to the coating solutions; claim 7 has been amended to correct the spelling of *fluoro*; claim 8 has been amended by deleting "preferably, about 0.01% to about 1.0%"; claim 10 has been amended by deleting "preferably, about 30% to about 50%"; and claim 11 has been amended by replacing the phrase "interaction with the solution comprises" with "blowing agent is caused to generate gas bubbles within the solution thereby causing foaming of said hydrophilic polymer by" for consistency with amended claim 1.

Applicants thank Examiner Cameron for the indication of allowable subject matter and the acknowledgement that claims 13 and 14 would be allowable if rewritten or amended to overcome the rejection under 35 USC § 112, second paragraph.

Election/restriction

In response to the Restriction requirement, the provisional election made on September 22, 2004 to prosecute the invention of PVA as polymer, generating gas bubbles before coating and addition of an acid as in claim 13 (i.e. claims 1, 4-13 and 15) is confirmed, with the request that they be rejoined with the application as appropriate should the corresponding generic claim be found to be allowable. Claims 2 and 3 have accordingly been withdrawn.

It is noted that whilst as a consequence the provisional election made on September 22, 2004, claim 14 was withdrawn from further consideration by the Examiner, it has now been rejoined into the application and examined.

35 USC § 112, second paragraph

Claims 1 and 4-15 were rejected under 35 USC § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter of the invention. In particular, phrases in the claims that the Examiner rejected as failing to satisfy 35 USC § 112, second paragraph, are the phrase “interacting with said solution” in Claim 1, which according to the Office Action could have a variety of meanings, the term “coating solution” in Claim 5, which according to the Office Action is unclear as to whether it is the same as or different from the coating solution of claim 1 and the phrase “preferably” in claims 8 and 10, which according to the Office Action renders those claims unclear. For at least the following reasons, Applicant traverses the rejection.

Claim 1 has been amended by deleting the phrase “interacting with said solution”, which, it is submitted, overcomes the 35 USC § 112 rejection since claim 1 is now clear as to the steps that have to be taken, and whilst the Examiner considered the phrase “interacting with said solution” to be indefinite, the claim now simply requires the skilled person to cause the blowing agent to generate gas bubbles within the solution, at least two methods of doing which are described in the specification. Claim 5 has been amended to clarify that a plurality of coating solutions, which may be the same or different, but each of which comprises the features of claim 1, may be coated simultaneously onto the support. Claims 8 and 10 have been amended by removing the preferably clause and including a definite limitation into those claims.

For at least the above reason, reconsideration and withdrawal of the rejection is in order.

For the same reasons as above, reconsideration and withdrawal of the rejection with respect to claims 4-15 is also requested.

Rejection under 35 USC § 102(b) over EP 765763

Claims 1, 4, 11 and 15 were rejected under 35 U.S.C. § 102(b) as allegedly anticipated by EP 765763. According to the Office Action, ‘763 teaches coating a base material of film or paper with a heat expandable layer of blowing agent and a polymer such as PVA, to make an image forming sheet to be used in inkjet printing, etc. The Office Action refers to the Abstract, Claims and paragraph 5, lines 29 to 35 and paragraph 6 line 48 to paragraph 7, line 3 of ‘763 in this regard.

According to the Office Action, the heat expandable layer 13 of Figure 2 of '763 includes both layers 14 and 15 (with reference to paragraph 4, lines 16 to 26). For at least the following reasons, Applicant traverses the rejection.

EP-A-0765763 ('763) discloses a three dimensional image forming sheet comprising a base material provided with a heat expandable layer onto which is to be formed a relief pattern according to an image to be recorded. In a first described embodiment, the heat expandable layer comprises of an antimicrobial agent and a blowing agent dispersed in a thermoplastic resin, which may be such as vinylacetate polymers and acrylic polymers, which upon heating can be thermally softened whilst the blowing agent undergoes thermal decomposition (see column 3, lines 57 to column 4, lines 6). According to a second embodiment described at column 4, line 16 to column 5, line 42, an image forming sheet comprises a base material, a foamable layer containing a blowing agent capable of expanding the layer upon heating and an antimicrobial layer, containing an antimicrobial agent, formed on the surface of the foamable layer. The foamable layer is constituted of a thermoplastic resin (e.g. vinyl acetate polymers or acrylic polymers) and a blowing agent dispersed therein (column 4, lines 38-43). The antimicrobial layer comprises an antimicrobial agent in a binder solution, which solution may be an organic, aqueous or emulsion type as desired in the circumstances (column 5, lines 4-10). Where an aqueous microbial solution is desired, water soluble polymers such as polyvinyl alcohol, methyl cellulose, hydroxypropyl methylcellulose and polyvinyl pyrrolidone may be used.

Claim 1, from which claims 4, 11 and 15 depend, is directed toward a method of making a material, comprising the steps of coating a support with a solution comprising a *hydrophilic polymer* and a blowing agent and either prior to or after the step of coating said support, causing said blowing agent to generate gas bubbles within the solution, causing foaming of said hydrophilic polymer.

'763 does not disclose a coating solution comprising a *hydrophilic polymer and a blowing agent*. There is no teaching in '763 that a blowing agent may be incorporated into a coating solution comprising a hydrophilic polymer. In both embodiments of the invention described in '763, the blowing agent is dispersed in a solution of a thermoplastic resin, which may be vinyl acetate polymers or acrylic polymers. These are not hydrophilic polymers. Only the second embodiment described in '763 mentions the use of hydrophilic polymers and then only for a separate coating solution comprising an antimicrobial agent and a hydrophilic

polymer *for coating onto the surface* of the foamable layer (column 4, lines 44-48). Accordingly, it is submitted that '763 does not disclose nor suggest the subject matter of claim 1 and claims 4, 11 and 15 dependent therefrom. For at least the above reasons, reconsideration and withdrawal of the rejection are in order.

Rejection under 35 USC § 102(b) over US 5,356,853 (Ueno et al)

Claims 1, 6-7 and 11-12 were rejected under 35 U.S.C. § 102(b) as allegedly anticipated by US 5,356,853 (Ueno et al). According to the Office Action, '853 teaches making a thermal transfer image receiving sheet with a foamed layer (see Abstract) made from a resin such as an acrylic (16:1-13) and a foaming agent (19:54-68), that may also contain a fluoro-surfactant (15:10-28). According to the Office Action, the foaming may occur with heat either at the time of application of the layer or afterwards (19:42-63). For at least the following reasons, Applicant traverses the rejection.

US 5,356,853 ('853) discloses a thermal transfer image receiving sheet comprising a substrate sheet having an intermediate layer disposed on the substrate and a dye layer disposed on the intermediate layer. The intermediate layer may contain bubbles to provide a cushioned underlayer for the dye layer. The sheet may be prepared by coating a dye layer onto a peelable substrate layer (or laminate), forming a foamable intermediate layer thereon and providing a support substrate on the intermediate layer. It is mentioned at column 16, lines 6-11 specific examples of the material constituting the intermediate layer, which the Examiner has referred to.

Claim 1, from which claims 4, 11 and 15 depend, is directed toward a method of making a material, comprising the steps of coating a support with a solution comprising a *hydrophilic polymer* and a blowing agent and either prior to or after the step of coating said support, causing said blowing agent to generate gas bubbles within the solution, causing foaming of said hydrophilic polymer.

'853 does not disclose a coating solution comprising a *hydrophilic polymer and a blowing agent*. There is no teaching in '853 that a blowing agent may be incorporated into a coating solution comprising a hydrophilic polymer. None of the materials mentioned at column 16, lines 6-11 are hydrophilic polymers. Accordingly, it is submitted that '853 does not disclose nor suggest the subject matter of claim 1 and claims 6-7 and 11-12 dependent therefrom. For at least the above reasons, reconsideration and withdrawal of the rejection are in order.

Rejection under 35 USC § 103(a) over EP 765763

Claims 5, 9 and 10 were rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over EP 765763. According to the Office Action, whilst '763, which is applied for the reasons given above in respect of the 102(b) rejection, does not disclose that a plurality of layers are simultaneously coated, this would be a mere variation on the "known coater" practice of 763 (3:50-56), and that whilst '763 does not disclose what the ratio of blowing agents to polymer is, it would have been obvious to one of ordinary skill in the art to have optimised this ratio depending upon the type of foam layer desired. For at least the following reasons, Applicant traverses the rejection.

It is submitted that claims 5, 9 and 10 are patentable over '763 by virtue of their dependence upon patentable claim 1, at least. As discussed above, '763 discloses a three dimensional image forming sheet comprising a base material provided with a heat expandable layer onto which is to be formed a relief pattern according to an image to be recorded. The layers that contain a blowing agent in the embodiments of '763 do not contain a hydrophilic polymer, but rather a heat expandable resin such as vinylacetate polymers and acrylic polymers. There is no indication or suggestion in '763 of using a blowing agent in a hydrophilic polymer coating solution and there is no suggestion in '763 as to any benefit of doing so. Accordingly, it is submitted that the skilled person in the art would not be led by the teaching of '763 to the present invention as defined by claim 1. Claim 1 and claims dependent thereon are therefore inventive over '763.

Furthermore, the particular feature of claim 10 which specifies the ratio of blowing agent to polymer would not be obvious in view of '763 because the optimisation of the ratio for a material according to '763, which comprises a different type of polymer and a material for a different purpose than that of the present application, would not necessarily arrive at the optimal ratios required by claim 10.

For at least the above reasons, reconsideration and withdrawal of the rejection are in order.

Rejection under 35 USC § 103(a) over US 5,356,853 (Ueno et al)

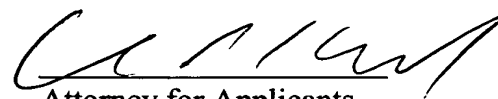
Claims 5 and 8-10 were rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over US 5,356,853. According to the Office Action, whilst '853, which is applied for the reasons given above in respect of the 102(b) rejection, does not

teach the % of fluorosurfactant used, it would have been obvious to one of ordinary skill in the art to have optimised the level of surfactant through no more than routine experimentation depending upon the qualities of the foamed layers that are desired. According to the Office Action, '853 teaches that the foaming agent can be up to 30 wt % of the resin (12:31-50), which overlaps with applicant's range and whilst '853 does not disclose that a plurality of layers are simultaneously coated, this would be a mere variation on known coating processes. For at least the following reasons, Applicant traverses the rejection.

It is submitted that claims 5 and 8-10 are patentable over '853 by virtue of their dependence upon patentable claim 1, at least. As discussed above, whilst it is mentioned in '853 at column 16, lines 6-11 specific examples of the material constituting the intermediate layer, which the Examiner has referred to, none of the materials described are hydrophilic polymers as required by claim 1 of the present application and there is no indication or suggestion in '853 that would lead the skilled person to utilise a blowing agent in a hydrophilic polymer for use as a coating solution. For at least the above reasons, reconsideration and withdrawal of the rejection are in order.

In view of the foregoing remarks, reconsideration of the above-identified patent application is respectfully requested. Prompt and favourable action by the Examiner is earnestly solicited. Should the Examiner require anything further, the Examiner is invited to contact Applicants' representative.

Respectfully submitted



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